

# THE QUADRINOMINAL INFRASUBSPECIFIC NAMES OF AUSTRALIAN ANTS (HYMENOPTERA: FORMICIDAE)

Robert W. Taylor

Australian National Insect Collection, CSIRO Division of Entomology, G.P.O. Box 1700, Canberra, 2601, Australia

## Summary

Forty-eight quadrinomial infrasubspecific names of Australian ants are reviewed. Three are considered to be available under the provisions of the International Code of Zoological Nomenclature. It is recommended that the remaining 45 should be excluded from future use as specific epithets in the appropriate genera.

Names of animal taxa proposed 'for infrasubspecific entities as such' are excluded from the provisions of the International Code of Zoological Nomenclature (Third edition, 1985) by its Articles 1b(5) and 45e. Criteria for 'Determination of subspecific or infrasubspecific rank' are listed in Article 45f, clause (iii) of which states that a name is deemed to be 'infrasubspecific, if the author, when publishing the name, published it as an addition to a trinomen'. Thus any name first published following 'the combination of a generic name, a specific name, and a subspecific name, that together constitute the scientific name of a subspecies' must be considered infrasubspecific.

Many previously infrasubspecific names have attained availability as species-group names because of nomenclatural acts subsequent to their first appearance. The Code provides that 'An infrasubspecific name that satisfies the other criteria of availability becomes available when the name is used for a species or subspecies' (Article 10c). Article 50c specifies that 'its author is the one who first uses it', and Article 23j determines that it 'takes priority from the date upon which it was used for a species or subspecies'. Despite these provisions I recommend that the elevation of infrasubspecific names should informally be discontinued, and that they should be left by future authors to remain outside the provisions of the Code.

Infrasubspecific names are not available as senior homonyms. Nonetheless, to avoid future nomenclatural confusion, it would seem not advisable for taxonomists to promulgate *new* species names formed from words previously used for infrasubspecific names in the genera involved. I recommend therefore that infrasubspecific names should be treated informally by future authors as if effectively preoccupied at the species-group level in their genera. Alternatively, a word previously used as an infrasubspecific name could be deliberately used as the name for a congeneric *new* species. This would block future elevation of the infrasubspecific name, because it would at that point be an immediate junior homonym. This practice is not recommended, since the infrasubspecific name might already have been elevated unknown to the author of the new species, and the new species name would then be a junior homonym.

Forty eight quadrinomial infrasubspecific names extracted from the literature of Australian myrmecology are reviewed here. Most were deliberately (and usually properly) excluded from the recent Australian Formicoidea catalogue of Taylor and D. R. Brown (1985), but this has confused some of its non-taxonomist users and explanation seems appropriate.

All 48 names are listed here in their original quadrinomial combinations, each with its author and reference.

- \* *Amblyopone australis cephalotes howensis* Wheeler, 1927: 15
- \* *Amblyopone australis cephalotes norfolkensis* Wheeler, 1927: 15
- \* *Amblyopone australis levidens queenslandica* Wheeler, 1927: 12
- \* *Amblyopone australis obscura pallens* Wheeler, 1927: 11
- \* *Aphaenogaster (Deromyrma) longiceps ruginota anguliceps* Viehmeyer, 1924: 311
- \* *Calomyrmex splendidus purpureus eremophilis* Wheeler, 1915: 820
- \* *Camponotus maculatus discors angustinota* Forel, 1907: 300
- \* *Camponotus maculatus discors laeta* Forel, 1910: 70
- \* *Camponotus (Myrmoturba) maculatus novaehollandiae achaeus* Forel, 1915: 98
- \* *Camponotus (Myrmoturba) maculatus novaehollandiae tambourinensis* Forel, 1915: 98
- \* *Camponotus (Myrmoturba) nigriceps dimidiatus perthiana* Forel, 1915: 97
- \* *Camponotus nigriceps obniger prostans* Forel, 1907: 301
- \* *Camponotus (Myrmoturba) nigroaeneus divus xuthus* Forel, 1915: 97
- \* *Camponotus splendidus purpureus cyanea* Forel, 1910: 83
- \* *Camponotus (Myrmophyma) walkeri bardus elongata* Crawley, 1923: 178
- \* *Cremastogaster (sic!) sordidula dispar bipartita* Forel, 1915: 54
- \* *Cremastogaster (sic!) sordidula queenslandica gilberti* Forel, 1910: 32
- \* *Iridomyrmex discors occipitalis exiliior* Forel, 1907: 294
- \* *Iridomyrmex glaber sommeri ianthinus* Emery, 1914: 420
- \* *Iridomyrmex gracilis mayri eteocles* Forel, 1915: 80
- \* *Iridomyrmex gracilis rubriceps lineae* Santschi, 1928: 472
- \* *Iridomyrmex innocens malandanus yarrabahna* Forel, 1915: 81
- \* *Iridomyrmex nitidus oceanicus victorianus* Stitz, 1911: 368  
(nec. *I. rufoniger victorianus* Forel, 1902: 466)
- \* *Iridomyrmex rufoniger pallidus pallidior* Forel, 1915: 78
- \* *Iridomyrmex rufoniger suchieri blackallensis* Forel, 1915: 78
- \* *Iridomyrmex rufoniger suchieri centralis* Forel, 1915: 52
- \* *Melophorus ladius sulla breviscapa* Forel, 1915: 89
- \* *Meranoplus hirsutus minor bimaculatus* Santschi, 1928: 470
- \* *Meranoplus pubescens fenestratus christmasensis* Forel, 1915: 48
- \* *Myrmecia forficata simillima violacea* Forel, 1915: 5
- \* *Myrmecia (Pristomyrmecia) fulvipes gilberti luteiforceps* Forel, 1915: 9
- \* *Notoncus gilberti annectens manni* Wheeler, 1934: 155
- \* *Odontomachus ruficeps acutidens yorkensis* Stitz, 1911: 356
- \* *Odontomachus ruficeps cephalotes cooktownensis* Forel, 1915: 35
- \* *Odontomachus turneri ruficeps ajax* Forel, 1910: 10
- \* *Polyrhachis (Chariomyrma) hookeri obscura bellendensis* Forel, 1915: 109
- \* *Polyrhachis (Campomyrma) micans ops dentinasis* Santschi, 1920: 185
- \* *Polyrhachis (Campomyrma) micans ops rufa* Crawley, 1921: 97
- \* *Polyrhachis rastellata laevior pilosa* Forel, 1902: 527
- \* *Polyrhachis (Myrma) relucens andromache andromeda* Forel, 1915: 110
- \* *Pheidole proxima transversa opacior* Forel, 1910: 44
- \* *Pheidole variabilis ocior alicensis* Forel, 1915: 59
- \* *Pheidole variabilis ocyma inops* Forel, 1915: 61
- \* *Pheidole variabilis rugociput athrospinosa* Forel, 1915: 58
- \* *Rhytidoponera convexa violacea opacior* Crawley, 1925: 583
- \* *Rhytidoponera convexa violacea subumbrata* Crawley, 1922: 434
- \* *Rhytidoponera mayri glabrior laevior* Stitz, 1911: 352
- \* *Rhytidoponera mayri glabrior rotundata* Stitz, 1911: 353

Those names marked \* above have apparently appeared only in quadrinomial combinations. They thus retain infrasubspecific status, and should be allowed to remain in this situation by future authors.

The epithet *cynanea*, listed following the trinomen *Camponotus splendidus purpureus*, should be excluded from future use both in *Camponotus* and *Calomyrmex*, to which both *splendidus* and *purpureus* are now assigned.

Some of these names were listed by Emery (1911A, 1922, 1925A) in fascicles of Wytsman's *Genera Insectorum*, in which each specific and infraspecific name appears on a separate line. In order to assess the status of names given as varietal (prefixed "var.") Emery's conventions must be understood. He consistently used quadrinomial nomenclature in his many papers, recognizing the hierarchy of categories—Genus: species: subspecies: variety (e.g. Emery, 1911B: 249, 257; 1921: 208; 1925B: 70; 1926: 2). This practice was followed in his *Genera Insectorum* fascicles, except that the names of nominotypical subspecies were not listed (as was also the case in some of the above references). For this reason varietal entries often appear on lines immediately following specific names. For example, the nominotypical subspecies name *discors* in *Camponotus* is omitted preceding "var. *angustinoda* Forel" under the heading *C. discors* Forel (1925A: 102), though it can be inferred beyond reasonable doubt that Emery intended *angustinoda*, and the following "var. *laeta* Forel", to be represented as infrasubspecific varieties of *C. discors* subspecies *discors*. Neither varietal name was therefore elevated at that time from its initial and continuing infrasubspecific rank (Note that Emery misspelled Forel's original "*angustinota*", a complication unimportant here). The same argument applies to the names *archaeus*, *perthiana* and *tambourinensis* in *Camponotus* (1925A: 96, 103, 96), to *gilberti* in *Crematogaster* (1922: 133), and to *ajax* in *Odontomachus* (1911A: 115). The infrasubspecific name *bipartita* in *Crematogaster* was given by Emery (1922: 132) as a "var." of *C. dispar* Forel, for which no subspecies were listed. I conclude that this apparently trinomial entry does not elevate *bipartita*, and infer the presence of an intervening nominotypical subspecies name, *dispar*, even though no other subspecies are recognized. This is not inconsistent with Emery's practices elsewhere (e.g. *Pheidologeton affinis* var. *minor* listed in 1911B: 249).

The four infrasubspecific names listed in *Amblyopone* were synonymised under *A. australis* Erichson by W. L. Brown (1958A: 13); *Camponotus maculatus novaehollandiae* *tambourinensis* was listed as a junior synonym of another (New Guinean) infrasubspecific name (appended to the same trinomen) by Emery (1925A: 96); *Myrmecia forticata similima violacea* was cited as a junior synonym of *M. rubra* Forel by Clark (1951: 98); *Notoncus gilberti annectens manni* was listed as a junior synonym of *N. gilberti* Forel by W. L. Brown (1955: 481); Forel's infrasubspecific names *ajax* and *cooktownensis* in *Odontomachus* and *O. ruficeps acutidens yorkensis*, were synonymised under *O. cephalotes* F. Smith by W. L. Brown (1976: 103); *Rhytidoponera convexa violacea opacior* was synonymised under *R. violacea* Forel, *R. convexa violacea subumbrata* under *R. convexa* (Mayr), and *R. mayri glabrius rotundata* under *R. maniae* Forel, by Clark (1936: 86, 84, 65); *Rhytidoponera mayri glabrius laevior* was synonymised under *R. aciculata* (F. Smith) by W. L. Brown (1958B: 202). These spurious synonymies do not alter the status of the names involved, so that all remain infrasubspecific are not available under the provisions of the Code. In addition, Brown (1958B: 203, 271) proposed the spurious new name *Rhytidoponera douglasi* for *R. levior* Crawley (1925: 581), presumably on the mistaken (and unexplained) grounds that the infrasubspecific name *laevior* of Stitz (1911: 352) was an available senior homonym. *R. douglasi* Brown is here declared a NEW JUNIOR SYNONYM of *R. levior* Crawley.

In the Taylor and Brown Catalogue (p. 62) the name *gilberti* in *Crematogaster*, first proposed in quadriminomial format by Forel (1915: 54) as listed above, was wrongly considered to have been elevated by Emery (1922: 132). This is not the case, and the name remains infrasubspecific.

Two quadriminomial names wrongly excluded by Taylor and Brown are in fact available under the Code. They attained status by being published for subspecies in the following combinations: *Camponotus nigriceps prostates* Forel 1910: 72, and, *Camponotus migroaeneus xuthus* Emery 1925A: 111.

The name *luteiforceps* in *Myrmecia*, first proposed infrasubspecifically by Forel (1915), became available when used as a subspecific name by Wheeler (1933: 74), and was raised to specific rank (in the synonymous genus *Promyrmecia*) by Clark (1943: 143). This name has been variously attributed to both Forel and Clark (the latter in the Taylor and Brown catalogue, p. 12)—its correct form is, however, *Myrmecia luteiforceps* Wheeler, 1933.

In taking the actions reviewed in the preceding two paragraphs I have concluded that the criteria of availability specified by the Code were properly satisfied when each of the previously infrasubspecific names involved was first used for a subspecies. Certainly in each case the author specified, by an appropriate reference 'indication', that the relevant infrasubspecific name had been the source of the name he then used. Also, each name had originally satisfied the criteria of availability (as outlined in Chapter V of the Code), except for its publication in a quadriminomial format. Type specimens are known to exist for each in its infrasubspecific context.

The Code is surprisingly unspecific concerning the types of such names. It may be presumed (as I have presumed) that the types of source infrasubspecific names become the types of the names as used in their subsequently available form, despite the differences in authorship and dates of availability. Thus, the type specimens concerned emerge from limbo and attain validity at this point, despite having referred previously to names excluded from the provisions of the Code. Without such arrangements regarding types the later use of the name would perforce stand not as an act of elevation, but as the establishment of a completely new name. There appears however to be no clear sanction for the above presumption, or even for concluding that reference to the original quadriminomial by the later author should in fact be accepted as an 'indication' under the provisions of Article 12b of the Code. Clearly, clarification of these matters by the International Commission of Zoological Nomenclature is desirable. In my opinion the Commission should also consider a declaration that all past infrasubspecific names which have not been previously elevated, and all future new names published in an infrasubspecific context, should be rendered invalid and unavailable for future elevation. All of those which have clear facility must surely by now have been elevated!

### References

- Brown, W. L. Jr. (1955). A revision of the Australian ant genus *Notoncus* Emery, with notes on the other genera of Melophorini. *Bull. Mus. comp. Zool. Harv.* 113: 471-494.
- Brown, W. L. Jr. (1958A). A review of the ants of New Zealand (Hymenoptera). *Acta Hymenopt.* 1: 1-50.
- Brown, W. L. Jr. (1958B). Contributions towards a reclassification of the Formicidae. II. Tribe Ectatommini (Hymenoptera). *Bull. Mus. comp. Zool. Harv.* 118: 175-362.
- Brown, W. L. Jr. (1976). Contributions toward a reclassification of the Formicidae. Part VI. Ponerinae, tribe Ponerini, subtribe Odontomachiti. Section A. Introduction, subtribal characters. Genus *Odontomachus*. *Studia ent.* 19: 67-171.
- Clark, J. (1936). A revision of the Australian species of *Rhytidoponera* Mayr (Formicidae). *Mem. natn. Mus. Vict.* 9: 14-89.
- Clark, J. (1943). A revision of the genus *Promyrmecia* Emery (Formicidae). *Mem. natn. Mus. Vict.* 13: 83-149.

- Clark, J. (1951). *The Formicidae of Australia*, Vol. 1: Subfamily Myrmecinae. CSIRO Australia, Melbourne. 230 pp.
- Crawley, W. C. (1921). New and little-known species of ants from various localities. *Ann. Mag. nat. Hist.* (9) 7: 87-97.
- Crawley, W. C. (1922). New ants from Australia. *Ann. Mag. nat. Hist.* (9) 9: 427-447.
- Crawley, W. C. (1923). Myrmecological notes—new Australian Formicidae. *Entomologist's Rec. J. Var.* 35: 177-179.
- Crawley, W. C. (1925). New ants from Australia—II. *Ann. Mag. nat. Hist.* (9) 16: 577-598.
- Emery, C. (1911A). Formicidae: Ponerinae. In Wytsman, P. (ed.) *Genera Insectorum* fasc. 188: 1-125.
- Emery, C. (1911B). Formicidae. In *Nova Guinea* 9 (2, Zoologie): 249-259.
- Emery, C. (1914). Les fourmis de la Nouvelle-Calédonie et des îles Loyauté. In Sarasin and Roux, *Nova Caledonia, Zool.* 1: 389-436.
- Emery, C. (1921). Formiche raccolte a Budrum (Anatolia) da R. Varriale, cap. medico nella R. Marina. *Ann. Mus. Civ. Stor. Nat. Genova* (3)9: 208-218.
- Emery, C. (1922). Formicidae: Myrmicinae. In Wytsman, P. (ed.) *Genera Insectorum* fasc. 174B: 95-206.
- Emery, C. (1925A). Formicidae: Formicinae. In Wytsman, P. (ed.) *Genera Insectorum* fasc. 183: 1-302.
- Emery, C. (1925B). I *Camponotus* (*Myrmentoma*) paleartici del gruppo *lateralis*. *Rend. Acc. Sc. Istit. Bologna, Ann.* 1924-25: 62-72.
- Emery, C. (1926). Ultime note mirmecologiche. *Boll. Soc. ent. Ital.* 58: 1-9.
- Forel, A. (1902). Fourmis nouvelles d'Australie. *Revue suisse Zool.* 10: 405-548.
- Forel, A. (1907). Formicidae. In Michaelsen, W. & Hartmeyer, R. (eds) *Die Fauna Südwest-Australiens*. Jena: G. Fischer. 1: 263-310.
- Forel, A. (1910). Formicides australiens recous de M. M. Froggatt et Rowland Turner. *Revue suisse Zool.* 18: 1-94.
- Forel, A. (1915). Results of Dr. E. Mjöberg's Swedish scientific expeditions to Australia 1910-1913. *Z. Ameisen. Ark. Zool.* 9: 1-119.
- Santschi, F. (1920). Quelques nouveaux *Camponotinae* d'Indochine et Australie. *Bull. Soc. Vaud. Sci. Nat.* 52: 565-569.
- Santschi, F. (1928). Nouvelles fourmis d'Australie. *Bull. Soc. Vaud. Sci. Nat.* 56: 465-483.
- Stitz, H. (1911). Australische Ameisen. *Sber. Ges. naturf. Freunde Berl.* 8: 351-381.
- Taylor, R. W. and Brown, D. R. (1985). Hymenoptera: Formicoidea. In Walton, D. W. (ed.) *Zoological Catalogue of Australia, Volume 2*. Australian Government Publishing Service, Canberra. 381 pp. (1-149, 306-348).
- Viehmeyer, H. (1924). Formiciden der Australischen faunenregion. *Ent. Mitt.* 13: 310-319.
- Wheeler, W. M. (1915). Hymenoptera. *Trans. R. Soc. S. Aust.* 39: 805-823.
- Wheeler, W. M. (1927). Ants of the genus *Amblyopone* Erichson. *Proc. Am. Acad. Arts Sci.* 62: 1-29.
- Wheeler, W. M. (1933). *Colony-founding among ants with an account of some primitive Australian species*. Harvard University Press, Cambridge, Massachusetts. 179 pp.
- Wheeler, W. M. (1934). Contributions to the fauna of Rottneest Island, Western Australia. No. IX.—the ants. *Jl. R. Soc. West. Aust.* 20: 137-163.